CHAPTER 7 - IMPLEMENTATION PLAN

7.1 INTRODUCTION

The improvements recommended in this Master Plan represent a large number of individual yet interrelated projects that collectively comprise the Preferred Development Plan (PDP). Some of the improvements will address existing concerns while others are required to accommodate the forecast growth in airport activity. The goal of the implementation plan is to ensure that the facilities are in place to accommodate the projected demand. Further, it ensures that all of the interrelated program components such as roadways, terminals, and parking are completed together to support increasing passenger volumes.

The PDP takes into account constraints such as environmental reviews and public procurement requirements. These processes explain why the implementation of large-scale capital improvements can take a long period of time. Gaining approvals, design, funding and commissioning for a capital program can often take longer than the actual construction of the improvements. Therefore, it is critical that the implementation plan provides adequate lead time in order to provide the facilities when needed.

7.2 FACTORS AFFECTING IMPLEMENTATION AND PHASING

7.2.1 Activity Volume and Operational Characteristics at the Airport

It is important to be cognizant of the operational characteristics of SAT as it currently operates and how it intends to operate going forward. The operational characteristics of the airport play a critical role in determining the scope and timing of development to ensure capacity is commensurate with demand. Many factors such as the type of airline operations, the type of markets served, aircraft fleet mix, air cargo operations, and General Aviation (GA) activity influence future facilities development.

SAT operates primarily as an Origin and Destination (O&D) airport where most passengers either originate or terminate at the airport without connecting to another destination. SAT's current airline tenants do not utilize the airport as a focus city or for major hub operations (which are commonly associated with connecting flights). It is important to understand the difference between direct operations and hubbing operations as increases in O&D passenger volume will often require different development strategies when compared to increases in connecting passenger volume.

SAT primarily serves domestic markets with international passengers accounting for only two percent of total passengers. Increases in international traffic, specifically transoceanic, can significantly affect the size of the airfield and the passenger terminal facilities. It is unlikely that direct international service will be offered at SAT in the immediate future due to its close proximity to two well-established major international airports (IAH and DFW) and the continued weak economic conditions at the time this Master Plan was prepared. However, there is an opportunity for SAT to attract more long-haul flights with improved international passenger facilities and with longer runways to accommodate larger widebody aircraft.

7.2.2 Implementation Triggers

A common thread presented throughout this Master Plan is the focus on developing a demand-driven plan. Implementation triggers have been established for each type of airport facility to identify when the design and construction of each project should begin. The airport facilities have been grouped by their primary function and are listed below.

- Airfield
- Commercial Passenger Terminal
- Landside
- Air Cargo
- Commercial Aviation
- Airline and Airport Support
- Aircraft Maintenance and Manufacturing

All projects must be carefully planned in unison to ensure the PDP can be implemented incrementally with the demand and to ensure any individual project does not adversely affect another. Each of the airport functions and their implementation triggers are described in the following sections.

The implementation plan is an iterative process, which requires monitoring and continuous re-evaluation to define when each project should be implemented to accommodate demand. The development schedules/implementation years for the individual projects are demand-driven and have been planned according to the baseline aviation forecast. Should the actual aviation activity differ from the forecast, Planning Activity Levels (PAL) have been established to identify when key projects must be commissioned and operational to avoid significant impacts to levels of service for each functional component of the airport.

Airfield Development

Typically, aircraft operations are used to define the trigger points for airfield development. The Master Plan normally identifies the level of either annual or peak hour demand that would dictate when the proposed improvements would have to be commissioned. For this Master Plan, most airfield improvements are not demand-driven as the existing airfield capacity is adequate to meet demand through 2030. The key airfield development projects are a function of strategic operational flexibility, not operational volume. The timing of the runway improvements must be precisely implemented to avoid impacting the existing airfield capacity. The key runway development projects are discussed further in the next section.

Commercial Passenger Terminal Development

Annual and peak-hour passenger enplanements are the most common terminal development triggers. Terminal space requirements are generally a function of enplanements and can be further refined to meet the specific needs that are unique to the Airport. Other factors such as outdated facilities can also prompt the need for terminal modifications. Furthermore, advancements in technology and changes in security requirements can also affect the timing of terminal development.

Landside Development

Landside development includes the access roadway system, terminal curbs, employee parking, public parking, and rental car facilities. The implementation triggers for landside development are primarily based on annual passenger enplanements and passenger level of service that can be accounted for in several key areas such as convenience, trip time, efficiency, and accessibility. Each of these areas is relatively simple to monitor and passenger congestion during peak periods can be easily observed.

Air Cargo Development

Air cargo facilities, specifically for all-cargo carriers, are operated by private entities and the requirement for expansion is tenant-driven. However, the Demand/Capacity and Facility Requirements section of the report provides a general guideline as to when the airport can anticipate growth in the all-cargo facilities based on forecasts of annual mail and freight tonnage.

Commercial Aviation Development

Commercial aviation development primarily includes GA corporate hangars and Fixed Base Operators (FBO), which provide space for private aircraft parking, fueling operations, aircraft hangars, and routine aircraft maintenance. These facilities are typically privately owned; and therefore, the development requirements are tenant-driven. However, the Demand/Capacity and Facility Requirements section of the Master Plan provides a general guideline as to when the Airport can anticipate the need for additional facilities based on forecast GA operations and based aircraft projections.

Airline and Airport Support Development

The Airline and Airport Support facilities include: tenant ground service equipment (GSE) storage and maintenance, airline catering and flight kitchen, airport fuel farm, Aircraft Rescue and Fire Fighting (ARFF), airport maintenance, Federal Aviation Administration (FAA) facilities, airport administrative facilities, and the centralized concessions receiving/distribution center.

GSE storage and maintenance facility needs are tenant-specific and will vary by airline; however, the Master Plan provides a general schedule for demand based on annual passenger enplanements. The airport fuel farm is sized according to peak-month average aircraft operations, the average amount of fuel dispensed per aircraft departure, and the number of days' supply of fuel stored onsite.

The airport maintenance facilities, airport administrative facilities, and centralized concessions receiving/distribution center are all functions of airport operations and are sized according to the individual requirements of each.

ARFF development is a function of airport safety. ARFF facility needs depend on the fleet mix expected to operate at the Airport since the fleet mix drives the ARFF equipment requirements and the ability of the emergency response vehicles to reach specific points on the airfield within a particular time limit.

Aircraft Maintenance and Manufacturing Facilities Development

The aircraft maintenance and manufacturing facilities are managed by private operators; and therefore, any expansion of these facilities is tenant-driven.

7.3 PREFERRED DEVELOPMENT PLAN PHASING

The Preferred Development Plan is implemented in three development periods: short-term (years 2011-2015), intermediate-term (years 2016-2020), and long-term (years 2021-2030). In addition, several projects have been identified for implementation after the Master Planning period and are recognized as Post-2030 improvements. This section describes each development period and the correlating projects.

7.3.1 Short-Term Implementation Plan (1-5 Years)

The short-term development includes ongoing projects, projects that address airport safety concerns and projects that are required in order to handle 229,200 annual aircraft operations and 4.8 million enplanements, the level of activity which is expected to occur in 2015. The short-term improvement projects are summarized below and depicted on **Figure 7-1**.

Land Acquisition Program

The 18 acre parcel of land proposed for the rental car maintenance and storage facility, located south of Loop 410, between US 281 and the rail corridor, is recommended to be acquired in the short-term to support the CONRAC.

Airfield Development

The only short-term airfield development project is the extension of Runway 3-21 to 8,500 feet. This project is currently under construction and scheduled to be completed in 2012.

Commercial Passenger Terminal Development

A detailed study of the short-term improvements in Terminal A is outside the scope of this Master Plan but improvements have been identified for Terminal A to meet the Airport's needs. The Airport will be conducting a separate study to determine the most appropriate short-term terminal improvements.

It is recommended that re-lifing of Terminal A by refurbishing and upgrading the existing infrastructure, utilities and aesthetics occur in the short-term implementation period. The re-lifing would focus on improvements for several deficiencies identified within Terminal A that should be addressed to accommodate future demand. The recommended terminal modifications include the following:

- Expand bag claim area
- Expand bag claim frontage on existing devices
- Add new bag claim devices
- Expand holdrooms
- Expand secure concessions

- Expand non-secure concessions
- Expand passenger screening area

Funding for this improvement has already been secured in the existing Capital Improvement Program.

As mentioned in the Alternatives Development and Evaluation report, a small GA Customs and Border Protection (CBP) processing area can be constructed in the short-term period on the south side of existing Concourse A. The CBP structure can then be relocated to the proposed two gate expansion on Concourse A in the intermediate-term, if required. Relocating the CBP facility to the Concourse A expansion is contingent on the timing of the west side GA redevelopment which will ultimately provide all GA CBP functions.

Landside Development

- Construct the Consolidated Rental Car Facility

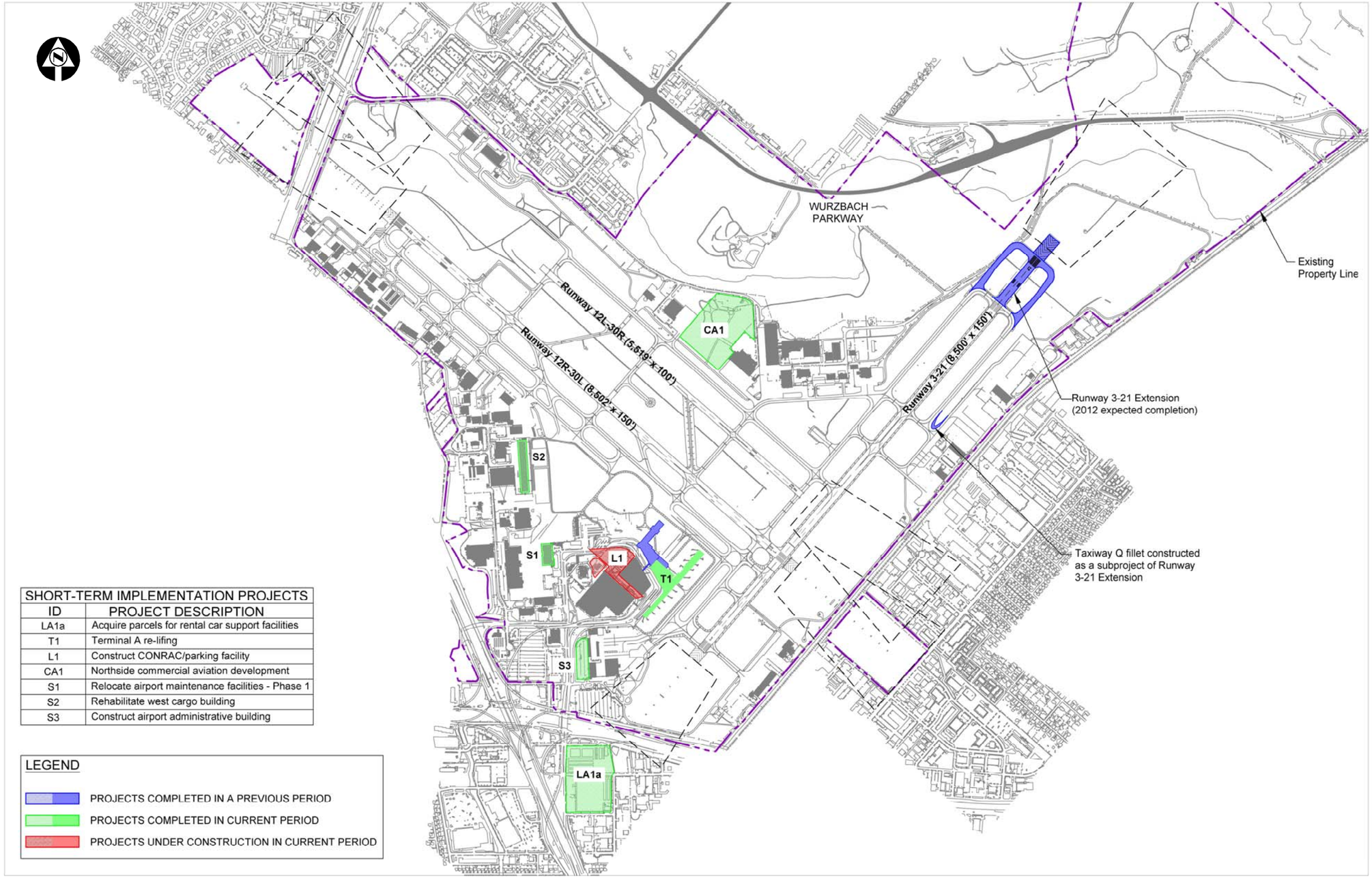
Commercial Aviation Development

- Prepare the site on the north side of Runway 12L-30R for development including environmental mitigation and grading

Airline and Airport Support Development

- Relocate the airport maintenance facilities to a temporary location in a vacant hangar located southwest of the terminal complex
- Rehabilitate the West Cargo Building
- Construct a standalone airport administrative building on the existing employee parking lot

Figure 7-1: Short-term Implementation Plan (1-5 Years)



SHORT-TERM IMPLEMENTATION PROJECTS	
ID	PROJECT DESCRIPTION
LA1a	Acquire parcels for rental car support facilities
T1	Terminal A re-lifing
L1	Construct CONRAC/parking facility
CA1	Northside commercial aviation development
S1	Relocate airport maintenance facilities - Phase 1
S2	Rehabilitate west cargo building
S3	Construct airport administrative building

LEGEND

- PROJECTS COMPLETED IN A PREVIOUS PERIOD
- PROJECTS COMPLETED IN CURRENT PERIOD
- PROJECTS UNDER CONSTRUCTION IN CURRENT PERIOD

7.3.2 Intermediate-Term Implementation Plan (6-10 Years)

Projects identified as intermediate-term are those that are required to meet the forecast activity levels ranging from 229,200 annual aircraft operations and 4.8 million enplanements to 244,700 annual aircraft operations and 5.5 million enplanements. The anticipated implementation of these projects is between 2016 and 2020. A summary of the intermediate-term implementation plan follows and is depicted on **Figure 7-2**.

Land Acquisition Program

The existing land envelope at SAT will need to expand in order to address the facility requirements. Intermediate-term land acquisition focuses on 86 acres (zoned light industrial & commercial use) on the south side of Loop 410, between US 281 and the rail corridor. This site will accommodate several landside facilities such as the employee and economy parking lots.

Additionally, the Airport should acquire properties located within the existing or proposed Runway Protection Zones to control development in the area. The affected RPZs are:

- Existing Runway 30L
- Existing Runway 30R
- Existing Runway 12L
- Existing Runway 12R
- Existing Runway 3
- Proposed (shifted) Runway 30L
- Proposed (upgraded) Runway 12L
- Proposed (shifted) Runway 12R

Airfield Development

The primary intermediate-term airfield development addresses the terminal taxilane restrictions and the upgrade of Runway 12L-30R. Improvements consist of paving grass areas to provide Airplane Design Group (ADG) III taxiways adjacent to the terminal facility and parallel ADG IV taxiways adjacent to Runways 12R-30L and 3-21. The airfield developments are summarized below.

- Extend Runway 3-21 to 8,500 feet (currently under constructed; 2012 completion)
- Shift Taxiway H and pave the grass area between Concourse A and Taxiway G
- Shift Taxiway N and pave the grass area between Concourse A and Taxiway N
- Construct pavement fillets on Taxiways B and L
- EIS planning and justification for Runway 12L-30R upgrade
- Upgrade Taxiway E to ADG V standards
- Demolish Taxiway B between Taxiways G and H
- Construct a high-speed exit taxiway on Runway 30L
- Begin construction on Runway 12L-30R to 8,500 feet with 35-foot shoulders including:
    - Construct/upgrade full-length parallel taxiway system
    - Demolish Taxiway M between Runways 12L-30R and 12R-30L
    - Demolish Taxiway P between Runways 12L-30R and 12R-30L
    - Install CAT I ILS system on Runway 12L

- Install CAT I ILS on Runway 21
- Relocate the compass calibration pad
- Construct two high-speed exit taxiways on Runway 3-21

Commercial Passenger Terminal Development

In the intermediate-term development plan, the GA tenants located south of the terminal complex will be required to relocate in order to expand the existing south Remain Overnight (RON) apron area. The tenant relocation enabling project is outlined in the short-term commercial aviation development section.

In order to continue to accommodate forecasted demand, it is recommended that Terminal A is expanded by widening the concourse in order to increase holdroom, concession, and operations space. The preferred alternative widening would increase the width by providing a 20' expansion along the entire length of the concourse as well as an additional 10' expansion along the North Concourse, near Gates 1, 2, 4, 6 and 7. In addition to the concourse widening, two additional contact gates should be added to the end of the concourse.

Landside Development

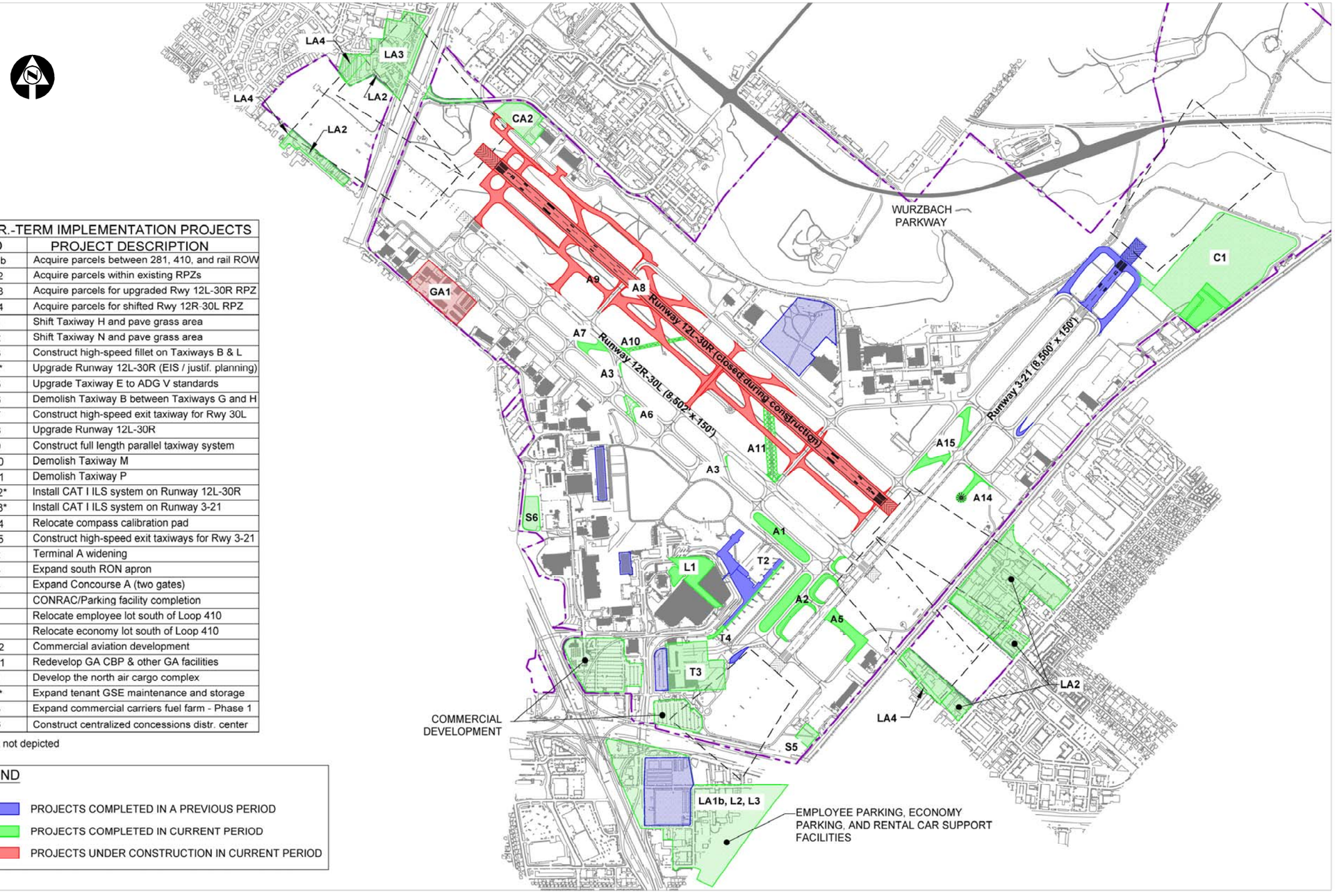
Landside development includes relocation of the economy and employee parking facilities to the south side of Loop 410, between US 281 and the rail corridor. Additionally, the CONRAC facility construction will be completed in this phase.

Landside development to the south of Loop 410 will be configured to facilitate connections to the regional transportation systems, more specifically to the Austin-San Antonio regional passenger rail, in order to facilitate access to the Airport for transit users. The regional rail is expected to be operational within the short-term improvements timeframe. It will use the existing rail alignment along Wetmore Road and a station will be located in proximity to the Airport. While the final details on this station location still need to be finalized by the Lone Star Rail District, it may potentially be located south of Loop 410 and colocated with the airport's landside development. This location would create significant synergistic opportunities for these landside functions and the Lone Star Rail District.

Figure 7-2: Intermediate-term Implementation Plan (6-10 Years)

INTER.-TERM IMPLEMENTATION PROJECTS	
ID	PROJECT DESCRIPTION
LA1b	Acquire parcels between 281, 410, and rail ROW
LA2	Acquire parcels within existing RPZs
LA3	Acquire parcels for upgraded Rwy 12L-30R RPZ
LA4	Acquire parcels for shifted Rwy 12R-30L RPZ
A1	Shift Taxiway H and pave grass area
A2	Shift Taxiway N and pave grass area
A3	Construct high-speed fillet on Taxiways B & L
A4*	Upgrade Runway 12L-30R (EIS / justif. planning)
A5	Upgrade Taxiway E to ADG V standards
A6	Demolish Taxiway B between Taxiways G and H
A7	Construct high-speed exit taxiway for Rwy 30L
A8	Upgrade Runway 12L-30R
A9	Construct full length parallel taxiway system
A10	Demolish Taxiway M
A11	Demolish Taxiway P
A12*	Install CAT I ILS system on Runway 12L-30R
A13*	Install CAT I ILS system on Runway 3-21
A14	Relocate compass calibration pad
A15	Construct high-speed exit taxiways for Rwy 3-21
T2	Terminal A widening
T3	Expand south RON apron
T4	Expand Concourse A (two gates)
L1	CONRAC/Parking facility completion
L2	Relocate employee lot south of Loop 410
L3	Relocate economy lot south of Loop 410
CA2	Commercial aviation development
GA1	Redevelop GA CBP & other GA facilities
C1	Develop the north air cargo complex
S4*	Expand tenant GSE maintenance and storage
S5	Expand commercial carriers fuel farm - Phase 1
S6	Construct centralized concessions distr. center

*Project not depicted



LEGEND

- PROJECTS COMPLETED IN A PREVIOUS PERIOD
- PROJECTS COMPLETED IN CURRENT PERIOD
- PROJECTS UNDER CONSTRUCTION IN CURRENT PERIOD

Commercial Aviation Development

- Develop the six-acre parcel north of the GA tenant hangars, adjacent to Taxiway RC, for commercial aviation development
- Redevelop the existing GA parcels located on the west side of the Airport for GA CBP processing, FBO facilities, and T-hangars

Air Cargo Development

The new air cargo facilities consist of two warehouse/processing facilities, a ±200,000 square-yard aircraft apron, and associated landside facilities.

- Relocate GA overflow parking away from the cargo complex and maximize the use of existing cargo facilities
- Construct aircraft apron
- Construct two warehouse/processing facilities
- Construct the associated landside facilities

Airline and Airport Support Development

- Expand tenant GSE storage and maintenance facilities within the existing West Cargo Building
- Expand the commercial carriers fuel farm by one additional tank on the south side of the existing site
- Redevelop the current airport maintenance and west side rental car facility sites to accommodate the centralized concessions receiving/distribution center

7.3.3 Long-Term Implementation Plan (11-20 Years)

Projects identified as long-term are those that are required to meet the forecast activity levels ranging from 244,700 annual aircraft operations and 5.5 million enplanements to 280,800 annual aircraft operations and 6.9 million enplanements. The anticipated implementation of these projects is between 2021 and 2030. A summary of the long-term implementation plan follows and is depicted in **Figure 7-3**.

Land Acquisition

Long-term land acquisition has been identified on the northwest side of the airport. The site is located between the existing airport property line and U.S. 281, encompasses approximately 90 acres, and is primarily industrial-use. The proposed site will be utilized primarily for commercial aviation development and aviation support. An Environmental Impact Statement (EIS) may be required to determine the potential impact of aviation activities on the surrounding environment.

Airfield Development

It should be noted that the rehabilitation of Runway 12R-30L is highly contingent on the outcome of a Pavement Condition Index (PCI) inspection that is expected to be completed this

year. The results of the PCI may shift the implementation of the runway rehabilitation significantly.

In the long-term planning stage, the Runway 12L-30R upgrade and the associated projects that were started in the intermediate phase are scheduled to be completed in addition to the following projects:

- Decoupling Runways 12R-30L and 3-21 by shifting Runway 12R-30L
  - Relocate the Runway 12R localizer outside of the new Runway Safety Area (RSA)
  - Extend Taxiways G and H
  - Construct new exit taxiway adjacent to Taxiway N
- Install a RNAV approach to Runway 12L-30R
- Rehabilitate Runway 12R-30L and construct 35-foot shoulders
- Upgrade NAVAIDS as required to facilitate new approaches such as Optimized Profile Descent (OPD) and/or Performance-Based Navigation

Commercial Passenger Terminal Development

- Construct Terminal C (six gates)

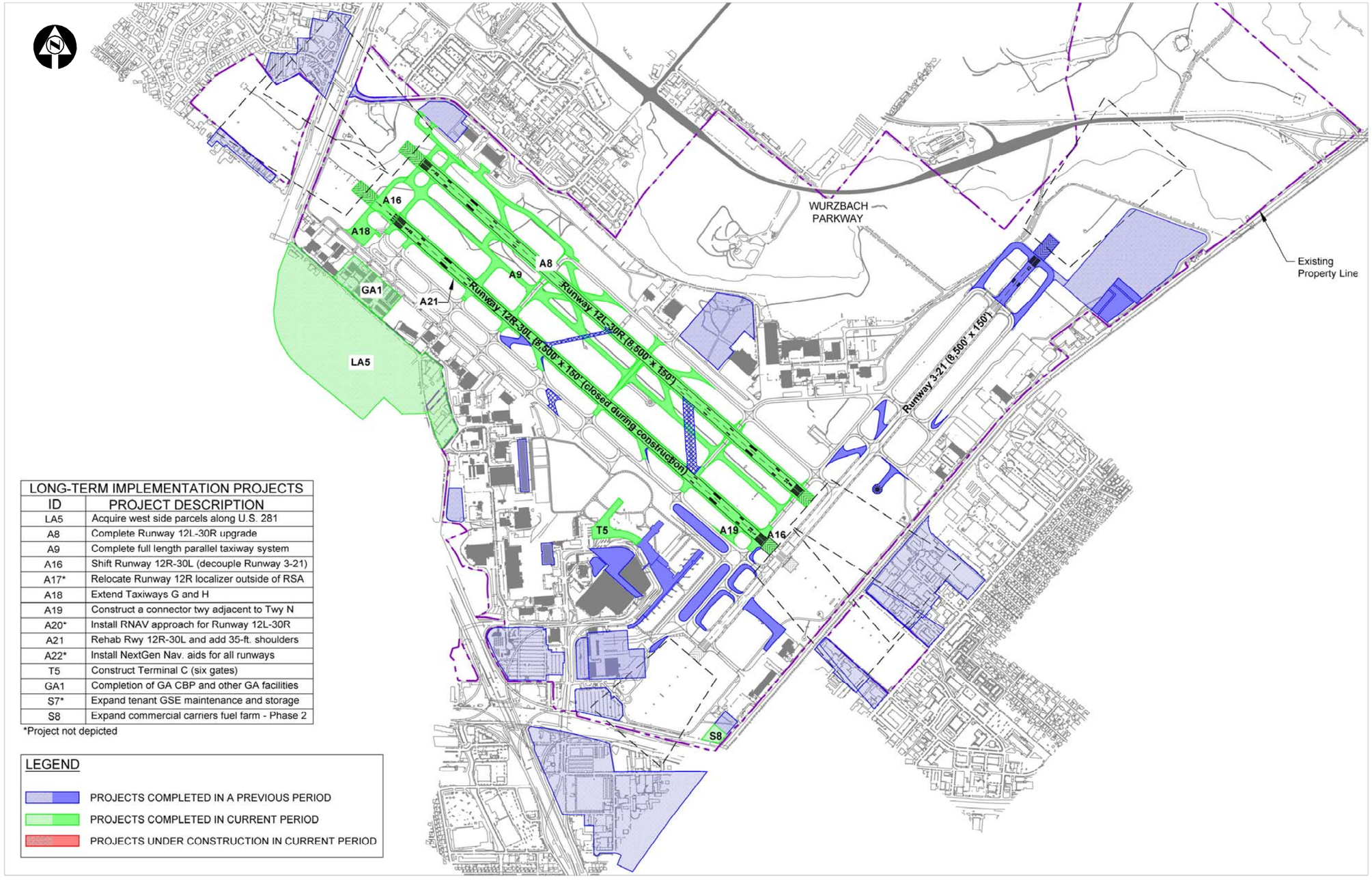
Commercial Aviation Development

- Complete the redevelopment of the existing GA parcels located on the west side of the Airport for GA CBP processing, FBO facilities, and T-hangars

Airline and Airport Support Development

- Expand tenant GSE storage and maintenance facilities within the existing West Cargo Building
- Expand the commercial carriers fuel farm by one additional tank on the south side of the existing site

Figure 7-3: Long-term Implementation Plan (11-20 Years)



LONG-TERM IMPLEMENTATION PROJECTS	
ID	PROJECT DESCRIPTION
LA5	Acquire west side parcels along U.S. 281
A8	Complete Runway 12L-30R upgrade
A9	Complete full length parallel taxiway system
A16	Shift Runway 12R-30L (decouple Runway 3-21)
A17*	Relocate Runway 12R localizer outside of RSA
A18	Extend Taxiways G and H
A19	Construct a connector twy adjacent to Twy N
A20*	Install RNAV approach for Runway 12L-30R
A21	Rehab Rwy 12R-30L and add 35-ft. shoulders
A22*	Install NextGen Nav. aids for all runways
T5	Construct Terminal C (six gates)
GA1	Completion of GA CBP and other GA facilities
S7*	Expand tenant GSE maintenance and storage
S8	Expand commercial carriers fuel farm - Phase 2

*Project not depicted

LEGEND

- PROJECTS COMPLETED IN A PREVIOUS PERIOD
- PROJECTS COMPLETED IN CURRENT PERIOD
- PROJECTS UNDER CONSTRUCTION IN CURRENT PERIOD

7.3.4 Post-2030 Implementation Plan

The Master Plan looked beyond the typical 20-year planning horizon and identified improvements required to address the Post-2030 activity levels beyond 280,800 annual aircraft operations and 6.9 million enplanements. A summary of the Post-2030 implementation plan follows and is depicted in **Figure 7-4**.

Airfield Development

- Extend Runway 3-21 to 10,000 feet (northeast)
    - Extend Taxiways N and Q to the new threshold of Runway 21

Commercial Passenger Terminal Development

- Expand Terminal C (three gates)
- Construct Terminal D

Landside Development

A Personal Rapid Transit (PRT) system could be built, when forecast passenger activity levels justify the investment in a fixed guideway system to transport passengers and others between the Lone Star Rail District station and the passenger terminals. The PRT system could also provide connections to other airport facilities such as the economy parking lot, the employee parking lot, and the proposed airport administration building. The potential synergy between these landside facilities had originally influenced the planning decisions to maintain each in close proximity to each other. Coordination with the Texas Department of Transportation will be required prior to plan development. Additionally, busing operations will be necessary in order to access various off-airport facilities until the PRT line is implemented.

Additional automobile parking can be accommodated on the existing Airport Traffic Control Tower (ATCT) site once the ATCT has been relocated. The existing ATCT site has the capacity to accommodate approximately 330 parking spaces.

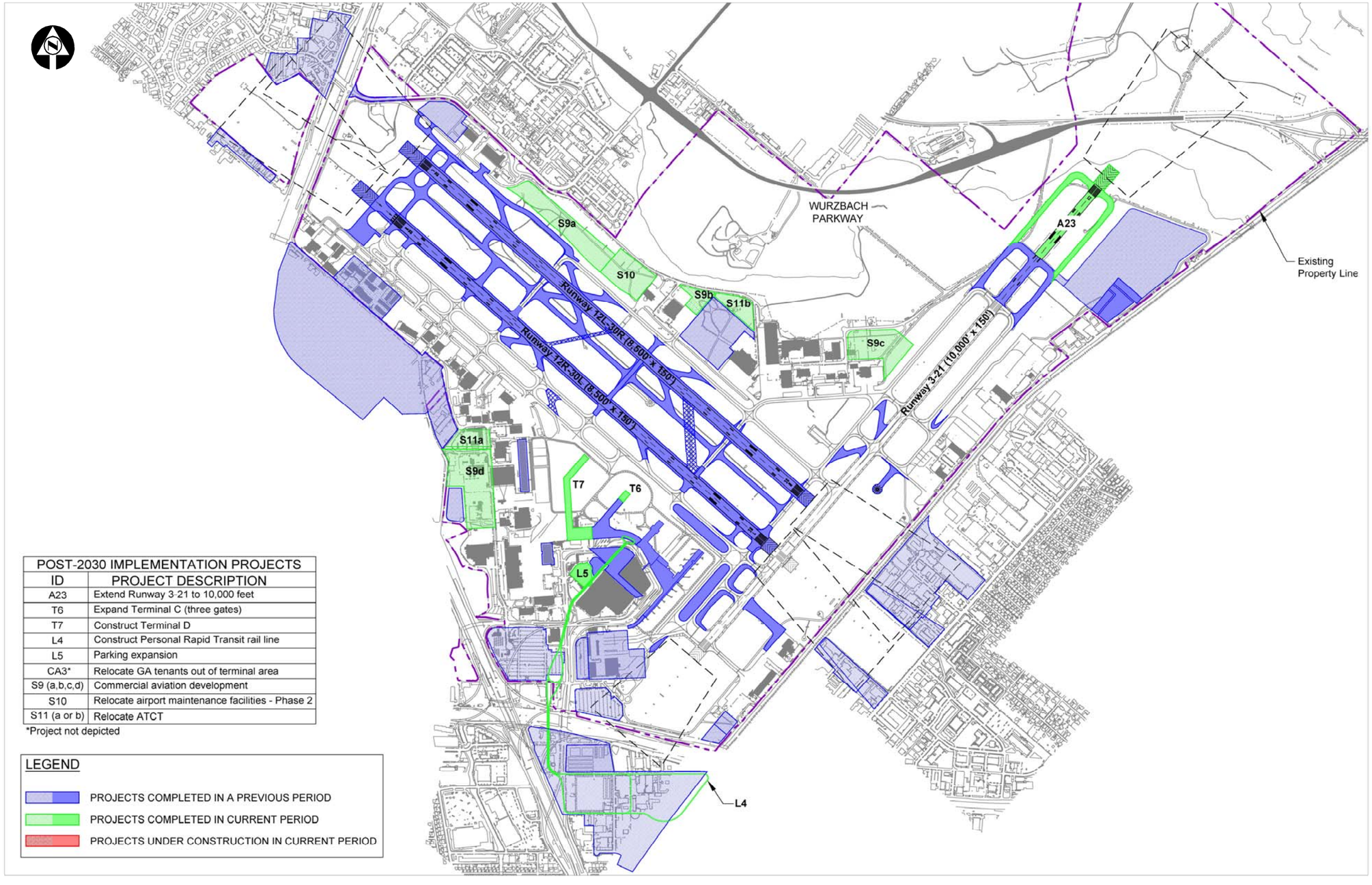
Commercial Aviation Development

- Relocate the remaining GA hangars in the passenger terminal area to the north side of the airfield

Airline and Airport Support Development

- Develop four parcels for commercial aviation uses
- Relocate the airport maintenance facilities to a permanent location west of the existing ARFF station
    - The ARFF training fuselage will be relocated in order to facilitate this project
- Relocate ATCT
    - Two potential alternate sites have been identified for the ATCT relocation; however, a comprehensive ATCT siting study is outside the scope of this master plan and should be completed in conjunction with the FAA.

Figure 7-4: Post-2030 Implementation Plan



POST-2030 IMPLEMENTATION PROJECTS	
ID	PROJECT DESCRIPTION
A23	Extend Runway 3-21 to 10,000 feet
T6	Expand Terminal C (three gates)
T7	Construct Terminal D
L4	Construct Personal Rapid Transit rail line
L5	Parking expansion
CA3*	Relocate GA tenants out of terminal area
S9 (a,b,c,d)	Commercial aviation development
S10	Relocate airport maintenance facilities - Phase 2
S11 (a or b)	Relocate ATCT

*Project not depicted

LEGEND

- PROJECTS COMPLETED IN A PREVIOUS PERIOD
- PROJECTS COMPLETED IN CURRENT PERIOD
- PROJECTS UNDER CONSTRUCTION IN CURRENT PERIOD

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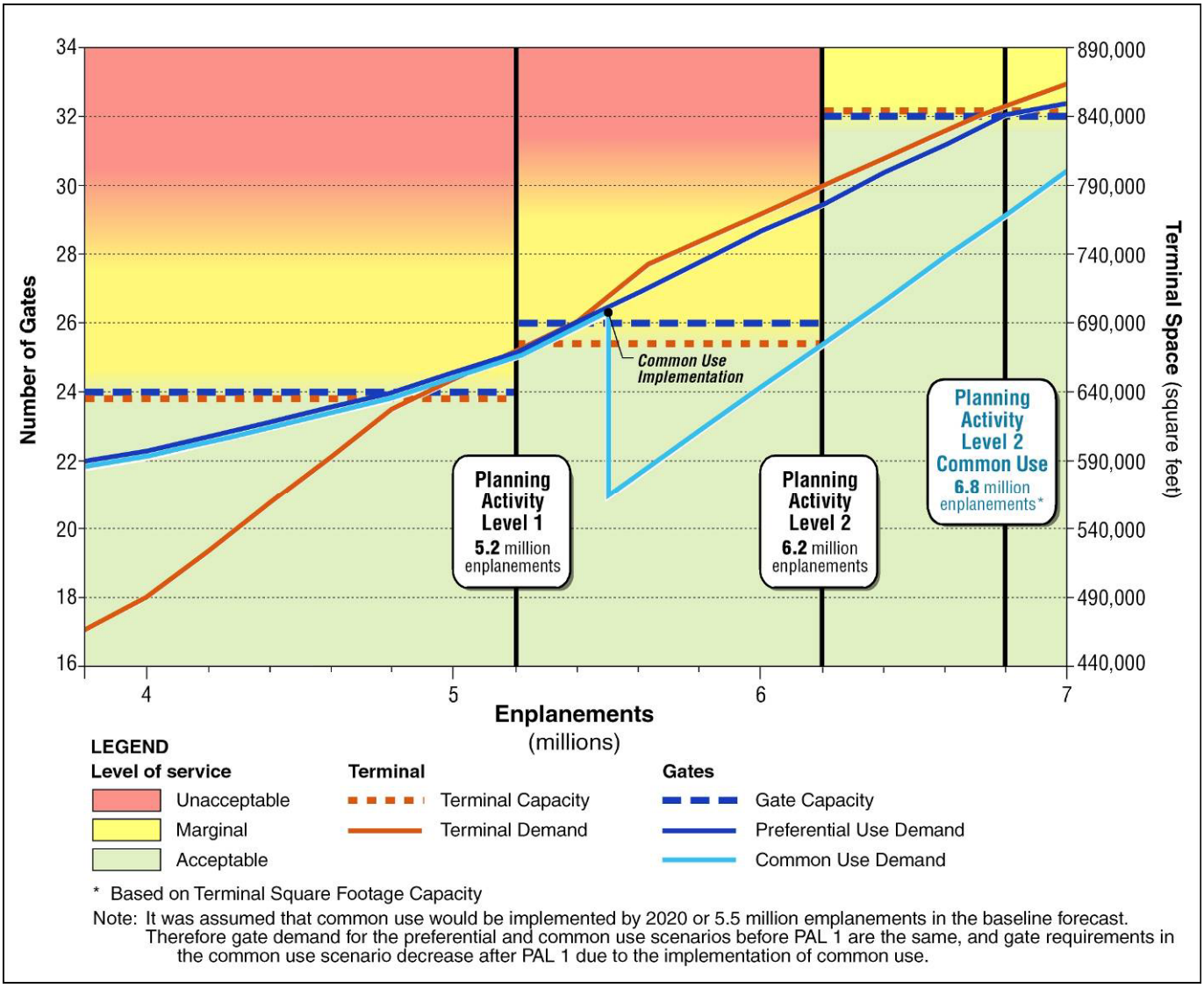
7.3.5 Planning Activity Levels

As part of the planning process, forecasts of aviation demand, facility requirements, and implementation plans are prepared based on 5, 10, and 20-year planning horizons. However, any number of events can affect the activity profile and either accelerate or delay the need for additional capacity. Therefore, sound planning practice includes developing Planning Activity Levels (PALs) that identify the specific number of annual aircraft operations or passenger enplanements requiring additional capacity. As the operating characteristics of the Airport change, the PALs will remain constant thereby providing a demand-based means to monitor the timing for facility improvements.

PALs are developed for the major infrastructure elements such as the airfield and the passenger terminal facility because these are the primary functions which often: 1) require the most capital, 2) take the longest to plan and implement, and 3) determine the overall airport capacity. The secondary infrastructure requirements, such as landside and airport support facilities, are also commonly tied to annual passenger enplanements however they are assumed to be grown proportionately with demand. Because the airfield projects at SAT are not demand-driven, PALs are only applicable to the terminal improvements. It is important to note that the PALs indicate when each terminal development project should be complete and operational. **Figure 7-5** presents the PALs and their associated operational volumes. Two scenarios are provided to depict the potential impact of utilizing a preferential-use aircraft gating operation versus a common-use operation. The terminal and gate demand are identical for both scenarios through PAL 1 which is equal to 5.2 million passenger enplanements and indicates the point at which two additional gates on Terminal A are required. However, PAL 2 varies for each scenario because the more conservative preferential-use gating operation has a greater gate demand; it requires PAL 2 to be implemented sooner. PAL 2 for the preferential- and common-use scenarios are approximately 6.2 and 6.8 million passenger enplanements, respectively. PAL 2 signifies the point at which Terminal C must be operational.

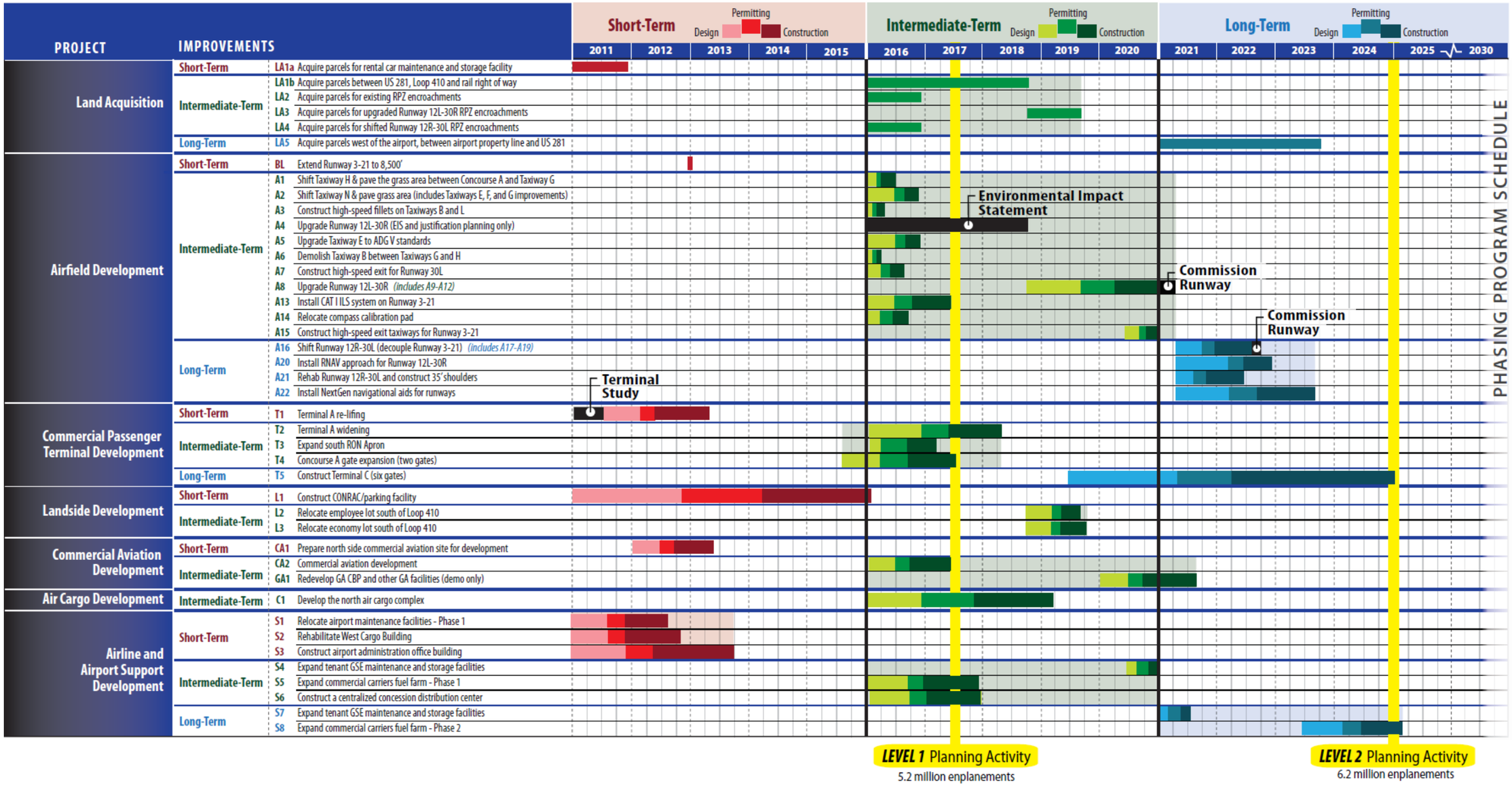
Figure 7-5: Planning Activity Level Chart



7.4 IMPLEMENTATION SCHEDULE

The implementation schedule (see **Figure 7-6**) has been provided for general guidance on the phasing of the PDP. The implementation schedule depicts the approximate duration for the design, permitting and construction of the individual PDP projects along with the anticipated sequence of the development. As noted earlier in the report, the implementation plan is an iterative process and any deviations of the actual activity from the forecast or availability of financing may require modifications to the overall PDP schedule. The project numbers on the schedule in Figure 7-6 correspond to the implementation plan exhibits shown in Figures 7-1, 7-2, and 7-3. A more detailed implementation schedule for the PDP is provided in **Appendix L**.

Figure 7-6: Implementation Schedule



7.5 COST ESTIMATES

The preliminary cost estimates for the PDP were developed to determine approximate development costs, calculated in 2010 dollars. **Tables 7-1**, **7-2**, and **7-3** present the cost estimates for the short-, intermediate-, and long-term development periods; a detailed cost estimate is provided in **Appendix M**. The estimating methodology employed for the cost estimates is as follows:

- Preliminary cost estimating is based on project drawings that are conceptual in nature.
- The unit costs are based on current cost information.
- Where there was not sufficient detail to provide unit prices, measurement parameters were developed from previous projects of a similar nature or from published construction cost data.
- Unit measurements were broken down into small components and rolled up into composite unit prices for use in the estimate. Unit prices include costs for labor, equipment, materials, contractors, overhead (general conditions, insurance, bonds, field & home office costs) and profit. Costs also include work on the airfield being performed with restricted hours and/or at night.
- Local contractors and suppliers provided current material pricing.
- When sufficient information was not available on a particular system or portion of an estimate, the estimate was based on historical data (e.g., the percentage of total cost that landscaping might represent on a land development project).
- New terminal pricing was developed from the construction cost of Terminal B and the estimated costs for Terminal C. The estimated costs include passenger boarding bridges and the furniture, fixtures, and equipment.
- Escalation is not included in the unit costs.
- Cost estimates include six percent of the construction costs for design fees and six percent of the construction costs for PM/CM fees.
- Property acquisition prices were developed from 2010 Bexar County Appraisal District Tax Rolls. Volume of buildings and area of parking lots were taken from these records to determine demolition quantities. Razed areas were assumed to be rough graded and hydro-seeded.
- Environmental assessment fees are included in the property acquisition costs and were calculated at $10,000 per acre.

The cost estimates served as the basis for the development of a capital improvement program and funding plan, provided in **Appendix O**. The financial plan, which should be read in its entirety, demonstrated that the preferred development plan is viable. It includes an in-depth

evaluation of the short-term plan of the PDP and a more general evaluation of the intermediate- and long-term plans of the PDP.

The City intends to fund the short-term PDP, which totals approximately $191.0 million and the 2010 Capital Program, which totals approximately $564.5 million through a combination of Federal Aviation Administration Airport Improvement Program (AIP) grants (entitlements and discretionary), TSA grants, state of Texas grants, Airport System funds, proceeds from the sale of GARBs, proceeds from the sale of PFC Bonds, pay-as-you-go PFC revenues, customer facility charge (CFC) revenues, and other third-party funding. The ultimate funding plan for those projects in the short-term PDP will be dependent on a number of factors including, but not necessarily limited to; actual SAT activity levels, refined project phasing and project cost data, potential changes to the AIP and/or PFC program, and third-party funding.

Due to uncertainties in activity and financial projects beyond the initial five-year projection period, analysis of the projects included in the intermediate- and long-term PDP was evaluated at a higher level than the short-term PDP. The intermediate-term is defined as 6-10 years from completion of the Master Plan and includes projects totaling $331.0 million. The long-term implementation plan is defined as 11-20 years from completion of the Master Plan and includes projects totaling $484.3 million.

Table 7-1: Short-term Implementation Plan Cost Estimate

Short-term Implementation Plan (1-5 Years)		
Projects	**Airport Funded**	**Other**
Land Acquisition		
LA1a - Acquire parcels for rental car maintenance and storage facility	-	$15,000,000
Land Acquisition Subtotal	**-**	**$15,000,000**
Commercial Passenger Terminal Development		
*T1 - Terminal A renovation and renewal project	$29,112,000	-
Commercial Passenger Terminal Development Subtotal	**$29,112,000**	-
Landside Development		
*L1 - Construct CONRAC/parking facility	-	$127,630,000
Landside Development Subtotal	**-**	**$127,630,000**
Commercial Aviation Development		
CA1 - Prepare north side commercial aviation site for development	-	$240,000
- Taxiway connector	-	$990,000
Commercial Aviation Development Subtotal	-	**$1,230,000**
Airline and Airport Support		
S1 - Relocate airport maintenance facilities - Phase 1	$1,200,000	-
S2 - Rehabilitate West Cargo Building	-	$2,860,000
*S3 - Construct airport administrative office building	$14,000,000	-
Airline and Airport Support Subtotal	**$15,200,000**	**$2,860,000**
Short-term Implementation Plan Subtotal	**$44,312,000**	**$146,720,000**

*Project cost is in existing Capital Improvement Program
Note: Cost estimates are calculated in 2010 dollars.

Table 7-2: Intermediate-term Implementation Plan Cost Estimate

Intermediate-term Implementation Plan (6-10 Years)		
Projects	**Airport Funded**	**Other**
Land Acquisition		
LA1b - Acquire parcels between 281, 410 and rail right of way	$11,560,000	-
LA2 - Acquire parcels for existing RPZ encroachments	$34,450,000	-
LA3 - Acquire parcels for upgraded Runway 12L-30R RPZ encroachments	$10,280,000	-
LA4 - Acquire parcels for shifted Runway 12R-30L RPZ encroachments	$2,400,000	-
Land Acquisition Subtotal	**$58,690,000**	-
Airfield Development		
A1 - Shift Taxiway H & pave the grass area between Concourse A and Taxiway G	$5,800,000	-
A2 - Shift Taxiway N & pave grass area	$11,200,000	-
A3 - Construct fillets on Taxiways B and L	$570,000	-
A4 - Upgrade Runway 12L-30R (EIS and justification planning only)	$2,000,000	-
A5 - Upgrade Taxiway E to ADG V standards	$3,730,000	-
A6 - Demolish Taxiway B between Taxiway G and H	$570,000	-
A7 - Construct high-speed exits for Runway 30L	$1,440,000	-
Runway 12L-30R upgrade and improvements (Includes A8-A12)	-	-
A8 - Upgrade Runway 12L-30R	$58,140,000	-
A9 - Construct/Upgrade full length parallel taxiway system	$34,800,000	-
A10 - Demolish Taxiway M between Rwy 12L-30R and 12R-30L	$480,000	-
A11 - Demolish Taxiway P between Rwy 12L-30R and 12R-30L	$1,370,000	-
A12 - Install CAT I ILS system	$1,500,000	-
Runway 12L-30R Upgrade Subtotal	**$96,290,000**	**-**
A13 - Install CAT I ILS system on Runway 3-21	$1,500,000	-
A14 - Relocate compass calibration pad	$1,700,000	-
A15 - Construct high-speed exits for Runway 3-21	$3,400,000	-
Airfield Development Subtotal	**$128,200,000**	**-**
Commercial Passenger Terminal Development		
T2 - Terminal A widening	$19,760,000	**-**
T3 - Expand south RON apron	$10.550,000	-
T4 - Concourse A gate expansion (two gates)	$11,820,000	**-**
Commercial Passenger Development Subtotal	**$42,130,000**	**-**
Landside Development		
L2 - Relocate employee lot south of Loop 410	$1,080,000	-
L3 - Relocate economy lot south of Loop 410	$5,380,000	-
Landside Development Subtotal	**$6,460,000**	**-**
Commercial Aviation Development		
CA2 - Commercial aviation development	-	$440,000
- Taxiway connector	-	$1,840,000
GA1 - Redevelop portion of west complex into GA CBP (demo only)	-	$510,000
Commercial Aviation Development Subtotal	-	**$2,790,000**
Air Cargo Development		
C1 - Develop north cargo complex	-	$78,040,000
- Taxiway connector	-	$760,000
Air Cargo Development Subtotal	-	**$78,800,000**
Airline and Airport Support		
S4 - Expand tenant GSE maintenance and storage facilities	-	$1,850,000
S5 - Expand commercial carriers fuel farm - Phase 1	-	$2,2400,000
S6 - Construct a centralized concession distribution center	$10,000,000	-
Airline and Airport Support Subtotal	**$10,000,000**	**$4,090,000**
Intermediate-term Implementation Plan Subtotal	**$245,480,000**	**$85,680,000**

Note: Cost estimates are calculated in 2010 dollars.

Table 7-3: Long-term Implementation Plan Cost Estimate

Long-Term Implementation Plan (11-20 Years)		
Projects	**Airport Funded**	**Other**
Land Acquisition		
LA5 - Acquire west side parcels between Airport property line and 281	$76,900,000	-
Land Acquisition Subtotal	**$76,900,000**	-
Airfield Development		
Shift Runway 12R-30L (Includes A16-A19)	-	-
A16 - Shift Runway 12R-30L (decouple Rwy 3-21)	$2,880,000	-
A17 - Relocate the localizer on the 12R end to the outside of the new RSA	$1,340,000	-
A18 - Extend Taxiways G and H to the new extension of Runway 12R-30L	$4,320,000	-
A19 - Construct a taxiway connector adjacent to Taxiway N	$750,000	-
Shift Runway 12R-30L Subtotal	**$9,290,000**	**-**
A20 - Install RNAV approach for Runway 12L-30R	$1,500,000	-
A21 - Rehab Runway 12R-30L and construct 35' shoulders	$53,630,000	-
A22 - Install NextGen Navigational Aids for runways	$5,000,000	-
Airfield Development Subtotal	**$69,420,000**	-
Commercial Passenger Terminal Development		
T5 - Construct Terminal C (six gates)	$334,500,000	-
Commercial Passenger Terminal Development Subtotal	**$334,500,000**	-
Airline and Airport Support		
S7 - Expand tenant GSE maintenance and storage facilities	-	$1,240,000
S8 - Expand commercial carriers fuel farm - Phase 2	-	$2,240,000
Airline and Airport Support Subtotal	-	**$3,480,000**
Long-term Implementation Plan Subtotal	**$480,820,000**	**$3,480,000**
Total thru Long-Term Implementation Plan	**$770,612,000**	**$235,880,000**

Note: Cost estimates are calculated in 2010 dollars.